MURRAY CITY

STORMWATER MANAGEMENT PLAN
February 28, 2003

Submitted to:

State of Utah
Department of Environmental Quality
Division of Water Quality

Submitted by:

Murray City
4646 South 500 West
Murray, UT 84123

MURRAY CITY
STORMWATER MANAGEMENT PLAN

TABLE OF CONTENTS

GLOSSARY

ABOP	Antifreeze, Batteries, Oil & Paint
BMP	Best Management Practices
DCIAs	Directly Connected Impervious Areas
DWQ	Division of Water Quality
EPA	Environmental Protection Agency
GIS	Geographic Information System
HHW	Household Hazardous Waste
MEP	Maximum Extent Practicable
MIS	Management Information System
PHF	Pesticides, Herbicides, Fertilizers
SIC	Standard Industry Classification
SLVHD	Salt Lake Valley Health Department
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
UAC	Utah Administrative Code
UPDES	Utah Pollutant Discharge Elimination System

MURRAY CITY
STORMWATER MANAGEMENT PLAN

PURPOSE

The Stormwater Management Plan (SWMP) will be implemented to limit, to the maximum extent practicable (MEP), the discharge of pollutants from the Murray City storm drain system. The development and implementation of the SWMP is to fulfill requirements of stormwater discharges from a Small Municipal Separate Storm Sewer System (UAC R317-8) and as a co-permittee under the state of Utah UPDES Permit for Salt Lake County (UTS00001) Authorization to Discharge Municipal Storm Water, Section II, in accordance with Section 402(p)(3)(B) of the Federal Clean Water Act, and the State Storm Water Regulations *(UAC R317-8-3.8).* The SWMP was developed to comply with Part I.C.2.b. of the UPDES permit.

SWMP COORDINATION

Agency:	Murray City, Public Services Department
Contact:	Doug Hill, 270-2400

SWMP REVIEW AND MODIFICATION

Murray City has prepared this SWMP to meet the requirements for a co-permittee under UPDES Permit No. UTS00001 issued on May 1, 2001. This SWMP includes the best management practices (BMPs) intended to reduce to the MEP, the quantity of stormwater and the discharge of pollutants to the stormwater system. The SWMP will be reviewed on an annual basis and any changes or modifications will be described and submitted to Salt Lake County and the State Division of Water Quality as part of the Annual Report. This review will include the following:

- A review of the status of program implementation and compliance
- A review of any revision or change of BMPs during the year and an assessment of the effectiveness of such revision
- An overall assessment of the goals and direction of the SWMP and effectiveness of BMPs
- A review of monitoring data, any changes in monitoring methods and parameters, and an assessment of the overall monitoring program.

STAFFING AND RESOURCE ALLOCATIONS

Management and oversight of the Stormwater Management Program is funded by the City's General Fund through an annual allocation process.

Murray is working in conjunction with two other parties for portions of the implementation of the Stormwater Management Program: Stormwater Coalition and Salt Lake Valley Health Department. Murray City contributes money to Salt Lake County for the Stormwater Coalition as a portion of their public education and outreach program. The Coalition provides a consistent public education program for Salt Lake County, thus strengthening the message.

A similar situation exists for the Illicit Discharges and Improper Disposal Program. The Salt Lake Valley Health Department responds to complaints regarding spills and illegal discharges and follows up on the complaints with tracking and enforcement. The portion of the Program that is funded by the City's General Fund is the Dry Weather Screening Program, storm drain system map, and coordination with the Salt Lake Valley Health Department.

SYSTEM OVERVIEW

Murray City is located in Salt Lake County and occupies an area of approximately 12 mi^2. The storm drain system within Murray is composed of pipes, detention basins, and surface waters. A few stormwater sumps are remaining. There are two creeks, Big Cottonwood Creek and Little Cottonwood Creek and one river, the Jordan River within Murray.

Murray City is largely built out with less than 10% of the City remaining vacant. Existing land use is approximately 45% residential, 20% commercial and industrial, 15% transportation, and 10% parks and open space. Much of the parks and open space are adjacent to the surface waters and function as buffers.

EXISTING PROGRAM SUMMARY

Murray City is currently implementing several stormwater programs, including:

- Public Education and Outreach
  - Participation in the Salt Lake County Stormwater Coalition
- Public Involvement and Participation
  - Murray City Earth Day information booth
- Illicit Discharge Connection
  - Storm Drain System Map and GIS database
  - Existing ordinance regarding storm drain discharges
  - ABOP (antifreeze, batteries, oil and paint) drop off program
- Construction Site Runoff Program
  - Site plan review and permitting process in place
- Post Construction Runoff Program
  - Require a stormwater quantity discharge restriction
- Pollution Prevention and Good Housekeeping
  - Street sweeping program
  - Storm drain system maintenance program

PROPOSED PROGRAM SUMMARY

The SWMP has been developed to meet the terms of the UPDES permit and consists of the six minimum control measures established by EPA for Phase II stormwater discharges. Implementation of these control measures are expected to result in significant reductions of pollutants discharged into receiving waterbodies. The six control measures are addressed in separate chapters.

Each control measure contains BMPs necessary for proper stormwater management. The BMPs contain specific tasks to meet the objective of that control measure. This SWMP is

intended to be a living document with BMPs added and deleted as new management practices arise and other management practices are found not to work. A schedule for implementing the BMPs is provided at the end of this section. The following provides a summary of each minimum control measure:

Chapter One – Public Education and Outreach Program

This measure is intended to ensure greater public support for the stormwater program and greater compliance through education. An informed public can significantly contribute to the success of the program.

In general, Murray City is emphasizing education in the SWMP because it is a cost-effective BMP and is proactive in trying to reduce stormwater pollutants rather than reactive by treating the stormwater pollutants. The BMPs in this chapter include:

- Salt Lake County Stormwater Coalition
- Information Booths
- Information Display at Murray Environmental Center
- Newsletters

Chapter Two – Public Involvement/Participation Program

This measure is intended to provide opportunities for the public to play an active role in both the development and implementation of the stormwater program. An active community is important to the success of the program. The BMPs in this chapter not only serve to involve the public, but also function to educate the public on stormwater issues. The BMPs in this chapter include:

- Open Houses
- Stormwater Website
- Storm Drain Inlet Identification

Chapter Three – Illicit Discharges and Improper Disposal Program

This measure is intended to minimize the illicit discharges into the storm drain system. Illicit discharges are those that are not composed entirely of stormwater. Storm drain systems are not designed to accept, process or discharge such non-stormwater wastes. Minimizing these discharges can help to prevent high levels of pollutants from entering receiving waters. The BMPs in this chapter include:

- Storm drain system map
- Ordinance
- Used Motor Vehicle Fluids & HHW Program
- Coordination with the SLVHD
- Public Reporting
- Identifying Industries (SIC codes)
- Dry weather screening program

Chapter Four – Construction Site Storm Water Runoff Control Program

This measure is intended to minimize polluted stormwater runoff from construction activities. Construction activities can contribute significant levels of sediment to stormwater runoff if erosion and sediment controls are not implemented. The BMPs in this chapter include:

- Program development
- Training of Municipal Personnel
- Contractor Education
- UPDES Notification to Contractors

Chapter Five – Post-Construction Storm Water Management Program

This measure is intended to minimize the impact to stormwater quality caused by development and redevelopment following construction. The increase in impervious areas caused by development can cause an increase in the type and quantity of pollutants in stormwater runoff. Prior planning and design to minimize pollutants in runoff from these areas is an important component to stormwater quality management. The BMPs in this chapter include:

- Program development
- Stormwater Ordinance
- Comprehensive Land Use Master Plan

Chapter Six – Pollution Prevention/Good Housekeeping Program

This measure is intended to ensure a reduction in the amount and type of stormwater pollutants by establishing routine activities in the operation and maintenance of municipal operations that address stormwater runoff. Setting particular guidelines for source controls and materials management is an important component to stormwater quality management. The BMPs in this chapter include:

- Training
- Storm Drain System Maintenance
- Snow Removal & Deicing Practices
- Salt Pile Management
- Pollution Prevention at Maintenance Yards
- PHF Program
- Spill Prevention & Response Program
- Flood Control Projects
- Street Sweeping

The Annual Report will document the activities completed each year, such as the number of people visiting educational booths, the number and locations of storm drain inlet markers, the number of construction project and the number street miles that were swept.

Murray City Stormwater Management Plan
Implementation Plan

	2003	2004	2005	2006	2007
Annual permit fee to Division of Water Quality					
PUBLIC EDUCATION AND OUTREACH					
Participate in the Salt Lake County Stormwater Coalition					
Participate in Murray City Earth Day with Information Booth					
Create stormwater display for Murray Environmental Center					
Document number of visitors and information distributed at Environmental Center					
Distribute newsletter/questionnaire					
PUBLIC PARTICIPATION AND INVOLVEMENT					
Open house at two city functions					
Follow City's public comment process for ordinance					
Create stormwater website on Murray's website					
Storm Drain Inlet Identification to 5 projects					
ILLICIT DISCHARGES AND IMPROPER DISPOSAL					
Storm drain system map					
Update storm drain system map with annexations					
Develop Dry Weather Screening Program					
Implement Dry Weather Screening Program					
Develop ordinance to prohibit non stormwater discharges					
ABOP program implementation					
Coordinate with Salt Lake Valley Health Department on enforcement actions					
Public reporting					
Identify industries within Murray City using SIC codes					
CONSTRUCTION SITE STORMWATER RUNOFF					
Document small construction sites obtaining permits through DWQ					
Develop Construction Site Stormwater Runoff Program					
Implement Construction Site Program					
Pass ordinance					
Develop and implement training for municipal personnel					
Develop and implement contractor education					
Public reporting					
POST-CONSTRUCTION STORMWATER MANAGEMENT					
Develop Post-Construction Stormwater Management Program					
Review Comprehensive Land Use Master Plan					
Require structural BMPs to reduce pollutants in sensitive areas					
Require decreased release rate in new development					
POLLUTION PREVENTION AND GOOD HOUSEKEEPING					
Develop municipal training program					
Implement municipal training program					
Storm Drain System Maintenance					
Snow Removal and Deicing training					
Evaluate salt alternatives					
Review salt pile management procedures					
Prepare SWPPP for Maintenance Yard					
Implement SWPPP for Maintenance Yard					
Evaluate current PHF practices					
Evaluate spill program					
Evaluate flood control projects for water quality considerations					
Continue street sweeping program					

CHAPTER ONE

PUBLIC EDUCATION AND OUTREACH PROGRAM

The Public Education and Outreach Program of the Stormwater Management Plan addresses increasing public and professional awareness of water quality concerns and BMPs that may be implemented with respect to protection of stormwater. The BMPs described in this section of the SWMP include education of the public sector through the use of newsletters and displays and participation in the Salt Lake County Stormwater Coalition. The public education through Murray and the Coalition will introduce the UPDES program and focus on known contaminant sources and how to control these sources.

This program also integrates many other facets of the SWMP to provide information and up-to-date BMPs to the end user. The following BMPs describe goals and assessment tasks to be completed by Murray City for the Public Education and Outreach Program.

PUBLIC EDUCATION AND OUTREACH

Objective: Reduce pollutants to receiving waters by increased public awareness of problems and solutions.

Permit Requirement: Part II.F.1. – Public Education and Outreach

Description of Tasks: Provide the public with educational materials, displays, newsletters and outreach activities regarding the impact of daily activities on stormwater quality.

Salt Lake County Stormwater Coalition: Murray City participates in the Salt Lake County Stormwater Coalition, a coalition of various local agencies whose purpose is reducing the load of pollutants entering the storm drains and receiving waterbodies, and enforcing the appropriate regulations. The Coalition meets monthly to coordinate new educational materials/programs, stormwater program development and inform all members of new regulations or stormwater workshops.

A budget for the educational program is established each year with the assistance of a consultant. The types of media and timing for distribution are discussed so that the public can be targeted during the spring and the fall. Other factors that are taken into consideration in choosing the types of media are the average number of times that a person will see the advertisement. Examples of the types of educational materials that are developed through the Coalition are:

- Television commercials
- Radio commercials
- Newspaper advertisements
- Bus board advertisements
- Tabloids
- Pencils and pads of papers
- Posters
- Magnets
- Activity books
- Public surveys

Information Booths: Coordinate with Salt Lake County to participate in the Murray City Earth Day with an information booth. The booth display includes a graphic panel illustrating the hydrologic cycle in an urban setting and is accompanied by a series of pamphlets or other educational materials that explain how the public can help reduce pollutants exposed to rainfall. The materials that are handed out at the booths primarily consist of the current information developed by the Salt Lake County Stormwater Coalition.

Information Display at Murray Environmental Center: Develop a display that provides stormwater information for use at the Murray Environmental Center. Information specific to Murray City and Coalition material will be utilized.

Newsletter: Develop a newsletter intended to provide information to the public regarding the impacts of their activities on stormwater quality and ultimately Big and Little Cottonwood Creeks and the Jordan River. The newsletter will also instruct the public how to access the City's website to obtain more information. The newsletter will be sent with the utility bills twice during the permit term.

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Year	Task/Goal	Assessment	Lead Entity
2003-2007	Salt Lake County Stormwater Coalition/ Participate in the Coalition	Contribute dollars Participate in monthly meetings	Engineering
2003-2007	Information Booths/ Participate in Murray City Earth Day every year	Document number of visitors Document information distributed	Engineering
2004	Create stormwater display/ Distribute information at Murray Environmental Center	Document number of visitors and information distributed	Engineering
2004 & 2006	Annual Newsletter/questionnaire/ Distribute stormwater information with Utility Bill	Document feedback & number of readers	Engineering

CHAPTER TWO

PUBLIC INVOLVEMENT AND PARTICIPATION PROGRAM

The Public Involvement and Participation Program section of the SWMP addresses the importance of public involvement with respect to protection of stormwater. Community participation provides for broader public support, shorter implementation schedules, a broader base of expertise and the development of important relationships with other community and government programs. The BMPs described in this section of the SWMP include opportunities for the public to play an active role in the development and implementation of the SWMP. Such opportunities include holding open houses, developing a stormwater website and a community program to foster public input.

This program will be integrated with the Public Education and Outreach Program to incorporate education with hands-on programs. The following BMPs describe goals and assessment tasks to be completed by Murray City for the Public Involvement and Participation Program.

PUBLIC INVOLVEMENT AND PARTICIPATION

Objective: Reduce pollutants to receiving waters by increased public awareness of problems and solutions and encouraging public participation.

Permit Requirement: Part II.F.2. – Public Involvement and Participation

Description of Tasks: Provide opportunities for public involvement in the development and implementation of the SWMP. Provide additional public awareness of the problems and solutions regarding stormwater. Murray will ensure that some of the materials that are developed for distribution are bi-lingual.

Public Comment on Ordinance Development: The City will follow the public comment process for all ordinances developed. The Council will hold a public hearing during a council meeting to receive public comments. Prior to the meeting, the hearing will be advertised on the City website, in a cabinet at City Hall, and at several locations around the city. The City will review the comments received prior to passing the ordinance.

Stormwater Website: The City will create a stormwater page on the City website. The stormwater page will provide the current copy of the Stormwater Management Plan and links to the Salt Lake County Stormwater Coalition and other stormwater quality related websites.

Storm Drain Inlet Identification: A program utilizing Eagle Scouts or other interested community groups will be initiated to glue markers on storm drain inlets to discourage illicit dumping and littering. The City will supply the groups who wish to participate with curb markers and glue, and the locations of where the markers are needed. The City will document the number of participants and storm drains that are marked. The City coordinate the purchase of inlet markers with the Salt Lake County, and will develop a map to track project locations.

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Year	Task/Goal	Assessment	Lead Entity
2003	Post Draft SWMP/ Notify public & receive comments	Document the comments received	Engineering
2004, 2005	Public Comment for Ordinance Development/ Follow the City's public comment process to receive comments on the ordinances prior to passing them	Document the number of comments received	Engineering
2004 & 2006	Stormwater website/ Add a stormwater page to the Murray City website	Document number of hits to site and track comments/responses	MIS Engineering
2003 – 2007	Storm Drain Inlet Identification/ Provide storm drain inlet markers to 20 projects during the permit term	Document the number of groups, curb markers and locations	Operations

CHAPTER THREE

ILLICIT DISCHARGES AND IMPROPER DISPOSAL PROGRAM

The Illicit Discharges and Improper Disposal Program section of the SWMP addresses non-stormwater flows that are discharged to receiving waters via stormwater conveyance systems. The program will implement BMPs to assist in the identification of illicit discharges and removal of these discharges from the system. This program will also focus on prevention of new illicit discharges to the stormwater system by means of education, regulations, and through spill prevention and response.

This program will also be integrated with the Public Education and Outreach program to promote awareness of the importance of protecting the stormwater system from illicit discharge and the resultant impact to receiving waters. The following BMPs describe goals and assessment tasks to be completed by Murray City for the Illicit Discharges and Improper Disposal Program.

ILLICIT DISCHARGES AND IMPROPER DISPOSAL

Objective: Identify and eliminate illicit discharges into the storm drain system to reduce to the MEP the discharge of pollutants into stormwater runoff. This will be accomplished by identifying intake and discharge areas of the stormwater system; implementing an ordinance; interagency cooperation; industrial activity review and dry weather screening to identify dry weather flows.

Permit Requirement: Part II.F.3. – Illicit Discharges and Improper Disposal

Description of Tasks:

Storm Drain System Map: Maintain current map in order to determine the source and extent of dry weather flows, and the particular water bodies these flows may be affecting. The land use map will be utilized for tracing dry weather flows and for computing the annual stormwater loads. The map will be updated as necessary, follow-up action on dry weather flows will be documented.

Annexation Update: Murray City has recently incorporated large areas that will be added to the GIS database. The storm drain system and land uses will be delineated.

Dry Weather Screening: The City will develop and implement a Dry Weather Screening Program to detect and address non-stormwater discharges to the storm drain system. The initial screening plan will occur quarterly.

Ordinance: Develop an ordinance or other regulatory mechanism designed to prohibit non-stormwater discharges to the storm drain system. The public notice requirements will be followed during the ordinance development process to obtain input on the ordinance.

ABOP/Used Motor Vehicle Fluids and Household Hazardous Waste Program: This program includes the Anti-freeze, Batteries, Oil and Paint (ABOP) program and the Annual HHW Drop Off Day that are both administered by the Salt Lake Valley Health Department and the Salt Lake Valley Solid Waste Management Facility. The ABOP program is a specific drop off point at Murray City for these materials that accepts waste year-round. The Annual HHW Drop Off Day provides a central location for residents to dispose of household hazardous waste once per year.

In addition to this program, the Salt Lake County Stormwater Coalition helps to educate the general public regarding the requirements for disposing of household hazardous wastes in the other educational materials (tabloid, activity book, etc.).

Salt Lake Valley Health Department: The City coordinates with the Salt Lake Valley Health Department on enforcement actions.

Public Reporting: The City maintains an after hours emergency phone number to central dispatch. If a call comes in regarding a complaint associated with the storm drain system, the proper City personnel are notified to investigate the complaint and to follow up with the Salt Lake Valley Health Department if necessary. Murray will develop a form for central dispatch to fill out regarding any storm drain issues. This will assist in tracking the number and type of calls that are received.

Industrial SIC Codes: The City will use existing databases to determine the SIC codes for industries within the City. The City will use this information to assist with identifying possible locations of non-stormwater discharges. These areas can then be targeted for dry weather screening. A list of the names will be supplied to the Division of Water Quality (DWQ).

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Year	Task/Goal	Assessment	Lead Entity
2003	Storm Drain System Map/ Maintain current map	Annual updates	Engineering
2004	Storm Drain System Map/ Update map with annexations	Update map and reevaluate land use	Engineering
2004	Ordinance/ Develop ordinance to prohibit non-stormwater discharges	Implement ordinance Assess effectiveness	Engineering with Attorney
2004	Dry Weather Screening/ Prepare a program to screen outfalls within Murray City for dry weather flows	Determine screening locations and procedures	Operations
2005-2007	Dry Weather Screening/ Implement Dry Weather Screening Plan	Track results with GIS data base	Operations
2003-2007	ABOP, Used Motor Vehicle Fluid and Household Hazardous Waste/ Continue ABOP program and annual drop off day	Promote program on website and at front desk Track number of drops through the ABOP program	Operations
2003-2007	Enforcement actions/ Continue coordination with the Salt Lake Valley Health Department regarding complaints and enforcement actions	Document the number of enforcement actions, follow-up activities and penalty values in Murray City	Operations
2003-2007	After Hours Emergency number/ Develop form for tracking calls. Continue to respond to complaints about the storm drain system	Document the number of calls & follow-up actions	Operations Dispatch
2005	Industrial SIC Codes/ Determine the SIC codes of industries within Murray City and their UPDES permitting obligation Develop methodology for determining industrial UPDES compliance	Document with GIS coverage Provide list of industries to DWQ	Engineering

CHAPTER FOUR

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL PROGRAM

The Construction Site Stormwater Runoff Control Program section of the SWMP addresses water quality concerns for construction sites greater than or equal to one acre. Polluted stormwater runoff from construction sites often flow to storm drains and into receiving waters. This runoff can contribute more sediment to receiving waters than can be deposited naturally during several decades. The resulting situation can cause physical, chemical and biological harm to receiving waters. The BMPs described in this section of the SWMP include the development of a construction site program designed to reduce pollutants in stormwater runoff from construction activities. This program will include procedures for construction site plan review, site inspections and notification of specific requirements to all construction site owners/operators.

This program will also be integrated with other facets of the SWMP to provide information and up-to-date BMPs to the public, construction site operators, etc. The following BMPs describe goals and assessment tasks to be completed by Murray City for the Construction Site Stormwater Runoff Control Program.

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Objective: Reduce erosion, sediment transport and other pollution caused by construction activities.

Permit Requirement: II.F.4. – Construction Site Storm Water Runoff Control

Description of Tasks:

Construction Sites: Document the number of small construction permits obtained through the DWQ.

Construction Site Runoff Program: The City will develop a program to address construction site stormwater runoff. The program will include a regulatory mechanism to enforce the program and mechanisms for site plan review, site inspections and enforcement. Murray will contact developers and contractors during the construction program development process to obtain input on the ordinance. Until the Construction program is developed, Murray will track the number of small construction sites that obtain a general permit from the Division of Water Quality.

Training of Municipal Personnel: Training will be provided to City personnel regarding stormwater regulations and the requirements for stormwater controls on construction sites. Information on specific stormwater BMPs will also be provided.

Contractor Education: Information will be provided to contractors regarding stormwater controls for construction sites. Salt Lake County has developed a Guidance Document for Stormwater that contains a chapter on construction site BMPs. The City will provide contractors with information on how to access the document.

Public Reporting: Public reporting of stormwater complaints at construction sties will occur through the general engineering phone number and the after hours emergency number to central dispatch.

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Year	Task/Goal	Assessment	Lead Entity
2003-2005	Construction Site Program/ Document the number of small construction permits obtained through the DWQ	Document the number of small construction site permits obtained	Engineering
2005	Construction Site Program/ Develop construction site program	Implement program	Engineering with Buildings
2005 - 2007	Training/ Provide training to all Building Department personnel	Document training and personnel	Engineering
2006	Contractor Education/ Provide training materials to contractors	Assemble & distribute standards	Engineering

Year	Task/Goal	Assessment	Lead Entity
2006-2007	Construction Site Program/ Implement construction site program	Document violations and corrective measures & document in Annual Report	Engineering
2006-2007	Public Reporting/ Respond to complaints	Track number of complaints and corrective actions taken	Engineering

CHAPTER FIVE

POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT PROGRAM

The Post-Construction Storm Water Management in New Development and Redevelopment Program addresses the importance of stormwater runoff management in new development and redevelopment projects following construction. The land use map for Murray shows that the City is nearly built out, with only minor vacant parcels remaining open for development. Therefore, the City's post-construction program will most likely focus on redevelopment projects.

Substantial impacts of post-construction runoff are caused by an increase in the type and quantity of pollutants in stormwater runoff. The BMPs described in this section of the SWMP include the development of structural and non-structural stormwater runoff strategies and the development of post-construction programs that consider water quality impacts of new development and redevelopment projects in the comprehensive land use master planning process.

The following BMPs describe goals and assessment tasks to be completed by Murray City for the Post-Construction Storm Water Management in New Development and Redevelopment Program.

POST CONSTRUCTION STORMWATER MANAGEMENT

Objective: Reduce the discharge of pollutants to stormwater runoff from areas of new development and redevelopment after construction is completed. Provide for long term BMPs to improve stormwater quality.

Permit Requirement: II.F.5. – Post-Construction Storm Water Management in New Development and Redevelopment

Description of Tasks:

Post Construction Stormwater Management Program: The City will develop a program to address post construction stormwater runoff with both structural and nonstructural controls. An ordinance will be developed to address stormwater runoff control from areas of new development and redevelopment. The ordinance will include allowances for site plan review, inspections and enforcement. Pre-plan review coordination with land development planners is essential to minimizing stormwater impacts caused by new development and redevelopment. This program will require coordination with planners to incorporate stormwater controls and to minimize directly connected impervious areas (DCIAs). Minimizing DCIAs include various methods designed to reduce the volume of runoff.

The city currently requires that structural controls, such as SNOUTs®, be installed on sites that are in sensitive areas. The City also requires that developers restrict their stormwater discharge by requiring detention. Incorporating additional controls through this program will be beneficial to reducing stormwater impacts.

Comprehensive Land Use Master Plan: Water quality impacts of new and significant redevelopment will be addressed in the Comprehensive Land Use Master Plan. Utilizing structural and/or non-structural BMPs (ie. setbacks, swales, etc.) will help to prevent many stormwater quality problems. Coordination with the Planning Department to incorporate stormwater controls is an important element to this program. Overlay storm systems in open spaces to identify locations to target for protection.

Structural Controls: The City currently requires structural controls for water quality. The City will continue this practice. However, additional areas may be targeted for structural controls through the Comprehensive Land Use Master Planning process. Evaluate potential maintenance agreements for the controls.

Detention Requirements: By requiring that newly developed sites have a decreased stormwater release rate, water quality improvements are observed. The detention requirement allows sediment and any associated pollutants to settle out prior to being discharged downstream. The City currently requires a decreased release rate and will continue sot to do so throughout the permit term.

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the schedule identified.

Year	Task/Goal	Assessment	Lead Entity
2004	Post Construction Stormwater Management Program/ Develop program	Document compliance in annual report	Operations Engineering
2004	Post Construction Stormwater Management Program/ Develop ordinance	Implement ordinance	Operations
2003	Comprehensive Land Use Master Plan/	Complete GIS coverages Annual updates Assess water quality controls in plan	Engineering
2003-2007	Structural Controls/ Continue to require structural controls as necessary	Document locations with GIS	Engineering
2003-2007	Detention Requirement/ Continue to require new developments to have a decreased release rate	Document stormwater discharges to receiving waters. Coordinate with Salt Lake County	Engineering

CHAPTER SIX

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROGRAM FOR MUNICIPAL OPERATIONS

The Pollution Prevention/Good Housekeeping Program of the Stormwater Management Plan addresses routine activities in the operation and maintenance for drainage systems, roadways, parks and open spaces, and other municipal operations to help ensure a reduction in pollutants entering the storm drain system. This Program includes a training component to prevent and reduce stormwater pollution from municipal operations. The BMPs in this program include source controls and materials management. Source controls are BMPs designed to prevent or reduce pollutants at the source and include BMPs such as storm drainage system maintenance and flood control projects. Materials management BMPs are designed to reduce pollutants with non-structural controls such as snow removal and deicing practices, pesticide education and spill prevention control.

This program will also be integrated with the Public Education and Outreach, Public Involvement and Participation and Illicit Discharges and Improper Disposal Programs to promote awareness of water quality concerns in performing routine roadway maintenance and operation, and other practices. The following BMPs describe goals and assessment tasks to be completed by Murray City for the Pollution Prevention/Good Housekeeping Program.

POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Objective: Reduce potential pollutants to the creeks and canals by limiting/controlling the pollutants at the source.

Permit Requirement: II.F.6. – Pollution Prevention/Good Housekeeping for Municipal Operations

Description of Tasks:

Training: A training program for public employees will be developed regarding pollutants that may be discharged to the storm drain system and the potential impacts. Proper training can reduce pollutants from such activities as storm drain system maintenance, park and landscape maintenance, roadway deicing, tack oil application, excess concrete, concrete truck washout and spill clean-up. Training will occur at a minimum of twice annually and will occur during the monthly safety meetings. The purpose of the training is to update operations, parks and golf course employees on stormwater issues and to provide a platform for a roundtable discussion on current practices and procedures and how they impact stormwater quality.

Storm Drain System Maintenance: The existing drainage system operation, maintenance and cleaning procedures will be evaluated for the purpose of reducing pollutants in stormwater runoff. Areas of chronic problems will be identified and corrective actions for these areas will be developed and implemented. Implementation of BMPs shall reference appropriate guidance materials. Proper system maintenance and employee training will help to reduce stormwater impacts from such activities as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

Floatables are prevented from being conveyed to receiving water with the use of trash racks. The material collected in the trash racks will be documented.

The current disposal procedures for waste removed from the storm drain system will be reviewed and assessed. Such wastes include dredge spoil, accumulated sediments, floatables and other debris. Controls for reducing or eliminating the discharge of pollutants from areas such as roads and parking lots, maintenance and storage yards and waste transfer stations will help to reduce the discharge of pollutants to receiving waterbodies.

Snow Removal and Deicing Practices: Murray City has a “Bare Road” policy to keep all roads open and free of snow or ice pack during every storm. The salt application rate is based on the temperature and snow pack conditions on the road surface accordingly. There is an annual coordination meeting prior to the winter season to discuss general practices and to review safety and equipment procedures.

Review and assess current deicing practices for prevention and reduction in stormwater pollution. The use of less toxic salt alternatives and appropriate BMPs will be evaluated.

Salt Pile Management: Murray City currently has one covered salt pile that is located at the public utilities office. Management and handling (loading and unloading) procedures of the salt pile will be reviewed and assessed to confirm there is no migration of concentrated suspended material to storm drain systems.

Pollution Prevention at Maintenance Yards: Murray City currently has one maintenance yard. A Stormwater Pollution Prevention Plan will be prepared and implemented.

PHF Program: Current practices will be evaluated and implemented as appropriate to reduce the discharge of pollutants related to the application of pesticides, herbicides and fertilizers applied by municipal employees or contractors to public right-of-ways, parks and other municipal facilities.

Spill Prevention and Response Program: Murray City currently responds to reports of spills or illegal discharges and initiates enforcement actions. Local fire departments are also equipped to respond to spills, to mitigate spills and to eliminate the danger to human health. The current program will be evaluated for effectiveness, and will be modified as necessary. Personnel training is an important component to this program.

Flood Control Projects: Assess new and existing flood control projects with respect to water quality concerns and modify capital improvement projects as necessary. Incorporate additional BMPs to reduce stormwater pollutants as appropriate, and utilize guidance documents for erosion control and materials management.

Street Sweeping: Routine street sweeping will reduce stormwater pollution by removing sediment accumulated on roadway surfaces. Sediment and the associated pollutants will be removed to prevent them from entering the storm drain system. Murray City currently conducts street sweeping of all streets at least 4 times per year.

Goals and Assessment: The table below represents measurable goals for this BMP to be implemented and assessed during the permit term. The purpose of measurable goals is to gauge permit compliance and program effectiveness following the scheduled identified.

Year	Task/Goal	Assessment	Lead Entity
2003 - 2007	Training/ Develop and implement a training program for all municipal operations employees	Provide training twice/year Document attendance and topics	Operations
2003 - 2007	Storm Drain System Maintenance/ Evaluate current operation, maintenance & cleaning procedures	Document activities Implement recommendations	Operations
2003 - 2007	Storm Drain System Maintenance/ Floatable controls	Document removal activities	Operations
2003	Snow Removal & Deicing Practices/ Training	Provide training Document attendance and topics	Operations
2003	Snow Removal & Deicing Practices/ Evaluate salt alternatives	Document findings & implement use as appropriate	Operations
2006	Salt Pile Management/ Review management & handling procedures	Implement recommendations	Operations Engineering

Year	Task/Goal	Assessment	Lead Entity
2003-2007	Pollution Prevention at Maintenance Yard/ Prepare SWPPP	Prepare and implement SWPPP	Operations
2004	PHF Program/ Evaluate current practices	Training/education Implement recommendations	Parks
2005	Spill Prevention and Response Program/ Evaluate existing program	Training/education Document spill locations and response	Operations
2003	Flood Control Projects/ Assess flood control projects	Document water quality assessment of capital improvements	Engineering
2003 - 2007	Street Sweeping/ Continue street sweeping program	Document miles swept per month and amount of material removed from roads	Operations